

WHAT IS CLAIMED IS:

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1 1. An apparatus for processing a semiconductor substrate, comprising:
2 a chamber body having an internal volume defined by first and second substantially
3 cylindrical regions and by side walls extending between the first and second substantially
4 cylindrical regions,
5 a substrate support disposed in the internal volume within the first substantially
6 cylindrical region; and
7 an exhaust system connected to a chamber outlet disposed in fluid communication
8 with the second substantially cylindrical region.

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1 2. The apparatus of claim 1, further comprising:
2 a chamber lid mounted on the chamber body; and
3 an electrode disposed on the chamber lid.

1 3. The apparatus of claim 2, wherein the electrode comprises one or more inductive
2 coils.

1 4. The apparatus of claim 2, wherein the electrode comprises one or more flat coils.

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1 5. The apparatus of claim 1, further comprising:
2 one or more chamber liners defining a substantially cylindrical processing region
3 adjacent the substrate support and an exhaust region adjacent the chamber outlet.

1 6. The apparatus of claim 5, wherein the substantially cylindrical processing region is in
2 fluid communication with the exhaust region through a passage defined by the liner.

1 7. The apparatus of claim 6, wherein the liner further comprises a plasma confinement
2 flange extending inwardly around the substrate support.

1 8. The apparatus of claim 7, wherein the substrate support further comprises a barrier
2 flange surrounding the substrate support.

1 9. The apparatus of claim 1, wherein the first substantially cylindrical region has a first
2 diameter at least about 30% larger than a second diameter of the second substantially
3 cylindrical region.

1 10. The apparatus of claim 1, wherein the first substantially cylindrical region has a first
2 diameter at least about 20% larger than a substrate support diameter.

1 (11) An apparatus for processing a substrate, comprising:
2 a chamber body having an internal volume;
3 one or more liners defining a substantially cylindrical processing region ^{and}
4 substantially cylindrical exhaust region within the internal volume, wherein the substantially
5 cylindrical processing region communicates with the substantially cylindrical exhaust region
6 through one or more openings in the one or more liners;
7 a substrate support disposed in the substantially cylindrical processing region; and
8 an exhaust system in communication with the substantially cylindrical exhaust region
9 through an exhaust port in the process chamber.

1 12. The apparatus of claim 11, wherein the internal volume is defined by first and second
2 substantially cylindrical regions and by straight side walls substantially tangent to the first
3 and second substantially cylindrical regions, and wherein the one or more liners define the
4 substantially cylindrical processing region in the first substantially cylindrical region and
5 define the substantially cylindrical exhaust region in the second substantially cylindrical
6 region.

1 13. The apparatus of claim 12, wherein the first substantially cylindrical region is parallel
2 to the second substantially cylindrical region.

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1 14. The apparatus of claim 13, wherein the first substantially cylindrical region has a first
2 diameter at least about 30% larger than a second diameter of the second substantially
3 cylindrical region.

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1 15. The apparatus of claim 13, wherein the first substantially cylindrical region has a first
2 diameter at least about 20% larger than a substrate support diameter.

1 16. The apparatus of claim 12, further comprising a chamber lid mounted on the chamber
2 body and an electrode secured to the chamber lid.

1 17. The apparatus of claim 16, wherein the electrode comprises one or more inductive
2 coils.

1 18. The apparatus of claim 16, wherein the electrode comprises one or more flat coils.

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2 19. The apparatus of claim 12, wherein the one or more openings in the one or more liners
2 are adjacent the substrate support.

1 20. The apparatus of claim 12, wherein the one or more liners comprise a plasma
2 confinement flange surrounding the substrate support.

21. An apparatus for processing a substrate, comprising:
2 a chamber body comprising an internal volume and an exhaust port;
3 one or more liners defining an exhaust region and a processing region within the
4 internal volume, wherein the exhaust region is co-axial with the exhaust port and the
5 processing region is on a parallel axis with the exhaust region; and
6 a substrate support disposed in the processing region.

1 22. The apparatus of claim 21, wherein the one or more liners comprise a plasma
2 confinement flange surrounding the substrate support.

1 23. The apparatus of claim 21, wherein the internal volume is defined by at least first and
2 second substantially cylindrical regions and by straight side walls substantially tangent to the
3 first and second substantially cylindrical regions, and wherein the one or more liners define
4 the processing region in the first substantially cylindrical region and define the exhaust region
5 in the second substantially cylindrical region.

1 24. The apparatus of claim 23, wherein the first substantially cylindrical region has a first
2 diameter at least about 30% larger than a second diameter of the second cylindrical region.

1 25. The apparatus of claim 23, wherein the first substantially cylindrical region has a first
2 diameter at least about 20% larger than a substrate support diameter.

1 26. The apparatus of claim 21, further comprising a chamber lid pivotally mounted on the
2 chamber body and an electrode secured to the chamber lid.

1 27. The apparatus of claim 26, wherein the electrode comprises one or more inductive
2 coils.

1 28. The apparatus of claim 26, wherein the electrode comprises one or more flat coils.

1 29. The apparatus of claim 21, wherein the processing region and each exhaust region are
2 substantially cylindrical.

1 30. An apparatus for configuring a processing chamber, comprising one or more chamber
2 liners defining a substantially cylindrical processing region and a parallel substantially
3 cylindrical exhaust region, wherein the substantially cylindrical processing region
4 communicates with the substantially cylindrical exhaust region.

1 32. The apparatus of claim 31, wherein the one or more liners comprise a plasma
2 confinement flange surrounding the substrate support.

1 33. A chamber body comprising a wall defining an interior space, the wall comprising a
2 first semi-cylindrical section of a first diameter; a second semi-cylindrical section of a second
3 diameter; and two straight sections, each extending between one end of the first semi-
4 cylindrical section and a corresponding end of the second semi-cylindrical section.

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